



Pending Claim Set For U.S. Application 10/091,897

TAB A



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1. Device for connection between a closed recipient and a container, said closed recipient comprising a neck whose opening is closed by a stopper, said connection device comprising:

a base adapted to be mounted on said recipient and comprising a sleeve forming an inner bore (A), and

a plunger adapted to slide in said bore, between a first position disengaged with respect to said stopper and a second so-called position of transfer, in which a hollow needle belonging to said plunger, traverses said stopper,

wherein said needle presents a non-circular outer cross-section, while said sleeve presents a likewise non-circular inner cross-section, the outer section of said needle and inner section of said sleeve being such that said needle can slide in said sleeve, without the possibility of rotation of said needle in said sleeve, and

an edge of said sleeve opposite said stopper is provided with stop means adapted to cooperate with a complementary means provided on said plunger to lock it in position of transfer.

2. The device of Claim 1, wherein said needle presents an oval outer cross-section while the inner cross-section of said sleeve is oval.

3. The device of Claim 1, wherein said needle presents a polygonal outer cross-section, while the inner cross-section of said sleeve is polygonal, with the same number of sides as said outer section of said needle.

4. The device of Claim 1, wherein said stop means provided on said edge of said sleeve comprises elastically deformable hooks while said complementary means provided on said plunger comprises bearing surfaces made on a flange in one piece with said needle, said needle and said flange together constituting said plunger.

5. The device of Claim 4, wherein said flange is provided with openings for passage of said hooks.

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6. The device of Claim 4, wherein said hooks are each provided with a nose adapted to be imbricated with a return bordering one of the bearing surfaces made on said flange.

7. The device of Claim 4, wherein said hooks project radially towards the outside with respect to said sleeve.

8. The device of Claim 1, wherein said base comprises a second sleeve disposed radially outside said sleeve, said second sleeve being adapted to cooperate with a cap for protecting said plunger with respect to the ambient atmosphere.

9. The device of Claim 8, further comprising rigidifying ribs connecting said sleeves.

10. The device of Claim 1, further comprising means for temporarily stopping said plunger in said disengaged position.

11. The device of Claim 10, wherein said means comprises at least one hollow made on the outer surface of said needle and at least one projection extending, from the inner radial surface of said sleeve, in the direction of a central axis (X-X') of said bore (A), said projection being adapted to be engaged in said hollow and to maintain said plunger in said first position.

12. Ready-to-use assembly comprising a closed recipient containing a product, particularly a pharmaceutical preparation, said recipient being provided with a neck whose opening is closed by a stopper, and a connection device mounted on said recipient, the connection device comprising:

a base adapted to be mounted on said recipient and comprising a sleeve forming an inner bore (A), and

a plunger adapted to slide in said bore, between a first position disengaged with respect to said stopper and a second so-called position of transfer, in which a hollow needle belonging to said plunger, traverses said stopper,

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wherein said needle presents a non-circular outer cross-section, while said sleeve presents a likewise non-circular inner cross-section, the outer section of said needle and inner section of said sleeve being such that said needle can slide in said sleeve, without the possibility of rotation of said needle in said sleeve, and

an edge of said sleeve opposite said stopper is provided with stop means adapted to cooperate with a complementary means provided on said plunger to lock it in position of transfer.

13. A connection device for connecting a closed recipient and a container, the closed recipient comprising a neck having an opening closed by a stopper, the connection device comprising:

a base configured to be mounted on the recipient and having a sleeve forming an inner bore; and

a plunger having a hollow needle, the plunger adapted to slide in said bore between a first position disengaged with respect to said stopper, and a second position, wherein the hollow needle traverses said stopper,

wherein said needle has a non-circular outer cross-section and said sleeve has a non-circular inner cross-section, the outer section of said needle and the inner section of said sleeve dimensioned such that said needle can slide in said sleeve without the possibility of rotation of said needle in said sleeve.